

WO 2004/058980

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SEQUENCE LISTING

<110> CropDesign N.V.

<120> Plants having modified growth characteristics and a method for making the same

<130> CD-070-PCT

<160> 50

<170> PatentIn version 3.1

<210> 1

<211> 692

<212> DNA

<213> Arabidopsis thaliana

<400> 1

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<212> PRT

<213> Arabidopsis thaliana

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<210> 5
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<213> Artificial sequence

<220>
<223> QALGGH motif

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<210> 6
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<212> PRT
<213> Artificial sequence

<220>
<223> NNM box

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<222> (3)..(3)
<223> Xaa can be either methionine or tryptophan

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<210> 7
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<212> PRT
<213> Artificial sequence

<220>
<223> EAR motif

<220>
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<223> Xaa can be any hydrophobic amino acid (Ala, Cys, Phe, Gly, His, Ile, Lys, Leu, Met, Arg, Thr, Val, Trp or Tyr)

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<220>
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<223> Xaa can be any amino acid or no amino acid

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<212> PRT
<213> Artificial sequence

<220>
<223> B-Box

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<222> (3)..(3)
<223> Ser can be serine or no amino acid

<220>
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<212> PRT
<213> Artificial sequence

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<223> Xaa can be any amino acid

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<223> Xaa can be any amino acid

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<220>
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<222> (10)..(11)
<223> Xaa can be any amino acid

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<211> 1006
<212> DNA
<213> Datisca glomerata

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<210> 11
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 <213> Datisca glomerata

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 35 40 45
 Tyr Leu Ala Phe Cys Leu Ile Met Leu Ala Arg Gly Arg Val Ala Ser
 50 55 60
 Ala Asn Arg Arg Asp Ser Gln Ser Ser Ile Gln Ile Gln Pro Glu Ala
 65 70 75 80
 Thr Thr Ser Ala Thr Lys Val Ser Tyr Lys Cys Ser Val Cys Asp Lys
 85 90 95
 Ala Phe Ser Ser Tyr Gln Ala Leu Gly Gly His Lys Ala Ser His Arg
 100 105 110
 Lys Leu Ala Gly Gly Glu Asp Gln Ser Thr Ser Phe Ala Thr Thr Asn
 115 120 125
 Ser Ala Thr Val Thr Thr Thr Thr Ala Ser Gly Gly Gly Gly Arg Ser
 130 135 140
 His Glu Cys Ser Ile Cys His Lys Ser Phe Pro Thr Gly Gln Ala Leu
 145 150 155 160
 Gly Gly His Lys Arg Cys His Tyr Glu Gly Ser Ile Gly Gly Asn Ser
 165 170 175
 Ile His His His Asn Asn Thr Thr Asn Ser Gly Ser Asn Gly Gly Met
 180 185 190
 Ser Met Thr Ser Glu Val Gly Ser Thr His Thr Val Ser His Ser His
 195 200 205
 Arg Asp Phe Asp Leu Asn Ile Pro Ala Leu Pro Glu Phe Arg Ser Asn
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Phe Phe Ile Ser Gly Asp Asp Glu Val Glu Ser Pro His Pro Ala Lys
 225 230 235 240

Lys Pro Arg Ile Leu Met Lys
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<210> 12
 <211> 996
 <212> DNA
 <213> Glycine max

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 ttgacgaccc aactattcca tgggcgaaac gaaaacgttc aaagcgttct cgcgaccatc 180
 cttctgaaga agagtacctc gccctctgcc tcatcatgct cgctcgcggc ggcaccacca 240
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<210> 13
 <211> 240
 <212> PRT
 <213> Glycine max

<400> 13
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 35 40 45
 Ile Met Leu Ala Arg Gly Gly Thr Thr Thr Val Asn Asn Arg His Val
 50 55 60
 Ser Pro Pro Pro Leu Gln Pro Gln Pro Gln Pro Thr Pro Asp Pro Ser
 65 70 75 80
 Thr Lys Leu Ser Tyr Lys Cys Ser Val Cys Asp Lys Ser Phe Pro Ser
 85 90 95
 Tyr Gln Ala Leu Gly Gly His Lys Ala Ser His Arg Lys Leu Ala Gly
 100 105 110
 Ala Ala Glu Asp Gln Pro Pro Ser Thr Thr Thr Ser Ser Ala Ala Ala

115 120 125
 Thr Ser Ser Ala Ser Gly Gly Lys Ala His Glu Cys Ser Ile Cys His
 130 135 140
 Lys Ser Phe Pro Thr Gly Gln Ala Leu Gly Gly His Lys Arg Cys His
 145 150 155 160
 Tyr Glu Gly Asn Gly Asn Gly Asn Asn Asn Ser Asn Ser Val Val
 165 170 175
 Thr Val Ala Ser Glu Gly Val Gly Ser Thr His Thr Val Ser His Gly
 180 185 190
 His His Arg Asp Phe Asp Leu Asn Ile Pro Ala Phe Pro Asp Phe Ser
 195 200 205
 Thr Lys Val Gly Glu Asp Glu Val Glu Ser Pro His Pro Val Met Lys
 210 215 220
 Lys Pro Arg Leu Phe Val Ile Pro Lys Ile Glu Ile Pro Gln Phe Gln
 225 230 235 240

<210> 14
 <211> 1006
 <212> DNA
 <213> Medicago sativa

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<210> 15
 <211> 235
 <212> PRT
 <213> Medicago sativa

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 Pro Phe Glu Glu Pro Asn Leu Ser Tyr Leu Glu Thr Pro Trp Thr Lys
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 <213> Nicotiana tabacum

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 35 40 45
 Glu Glu Glu Tyr Leu Ala Leu Cys Leu Ile Met Leu Ala Arg Ser Gly
 50 55 60
 Thr Gly Thr Arg Thr Gly Leu Thr Asp Ala Thr Thr Ser Gln Gln Pro
 65 70 75 80
 Ala Asp Lys Lys Thr Ala Glu Leu Pro Pro Val His Lys Lys Glu Val
 85 90 95
 Ala Thr Glu Gln Ala Glu Gln Ser Tyr Lys Cys Ser Val Cys Asp Lys
 100 105 110
 Ala Phe Ser Ser Tyr Gln Ala Leu Gly Gly His Lys Ala Ser His Arg
 115 120 125
 Lys Thr Thr Thr Thr Ala Thr Ala Ala Ser Asp Asp Asn Asn Pro Ser
 130 135 140
 Thr Ser Thr Ser Thr Gly Ala Val Asn Ile Ser Ala Leu Asn Pro Thr
 145 150 155 160
 Gly Arg Ser His Val Cys Ser Ile Cys His Lys Ala Phe Pro Thr Gly
 165 170 175
 Gln Ala Leu Gly Gly His Lys Arg Arg His Tyr Glu Gly Lys Leu Gly
 180 185 190
 Gly Asn Ser Arg Asp Leu Gly Gly Gly Gly Gly Gly His Ser Gly
 195 200 205
 Ser Val Leu Thr Thr Ser Asp Gly Gly Ala Ser Thr His Thr Leu Arg
 210 215 220
 Asp Phe Asp Leu Asn Met Pro Ala Ser Pro Glu Leu Gln Leu Gly Leu
 225 230 235 240

Ser Ile Asp Cys Gly Arg Lys Ser Gln Leu Leu Pro Met Val Gln Glu
245 250 255

Val Glu Ser Pro Met Pro Ala Lys Lys Pro Arg Leu Leu Phe Ser Leu
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Gly

<210> 18
<211> 1213
<212> DNA
<213> *Oryza sativa*

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<210> 19
<211> 269
<212> PRT
<213> *Oryza sativa*

<400> 19

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35 40 45
Ala Lys Arg Lys Arg Ser Arg Arg Gln Arg Ser Glu Glu Glu Asn Leu
50 55 60
Ala Leu Cys Leu Leu Met Leu Ala Arg Gly Gly His His Arg Val Gln
65 70 75 80

Ala Pro Pro Pro Leu Ser Ala Ser Ala Pro Pro Pro Ala Gly Ala Glu
85 90 95

Phe Lys Cys Ser Val Cys Gly Lys Ser Phe Ser Ser Tyr Gln Ala Leu
100 105 110

Gly Gly His Lys Thr Ser His Arg Val Lys Leu Pro Thr Pro Pro Ala
115 120 125

Ala Pro Val Leu Ala Pro Ala Pro Val Ala Ala Leu Leu Pro Ser Ala
130 135 140

Glu Asp Arg Glu Pro Ala Thr Ser Ser Thr Ala Ala Ser Ser Asp Gly
145 150 155 160

Met Thr Asn Arg Val His Arg Cys Ser Ile Cys Gln Lys Glu Phe Pro
165 170 175

Thr Gly Gln Ala Leu Gly Gly His Lys Arg Lys His Tyr Asp Gly Gly
180 185 190

Val Gly Ala Gly Ala Gly Ala Ser Ser Thr Glu Leu Leu Ala Thr Val
195 200 205

Ala Ala Glu Ser Glu Val Gly Ser Ser Gly Asn Gly Gln Ser Ala Thr
210 215 220

Arg Ala Phe Asp Leu Asn Leu Pro Ala Val Pro Glu Phe Val Trp Arg
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Pro Cys Ser Lys Gly Lys Lys Met Trp Asp Glu Glu Glu Glu Val Gln
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<210> 20
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<212> DNA
<213> Petunia x hybrida

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tcaaggctat ctcttccacc taaacttgaa ttattcaaag gattatagag ggaatattga 960
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<210> 21
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 <212> PRT
 <213> Petunia x hybrida

<400> 21
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 35 40 45
 Glu Glu Tyr Leu Ala Leu Cys Leu Ile Met Leu Ala Arg Ser Asp Gly
 50 55 60
 Ser Val Asn Asn Ser Arg Ser Leu Pro Pro Pro Pro Leu Pro Pro Ser
 65 70 75 80
 Val Pro Val Thr Ser Gln Ile Asn Ala Thr Leu Leu Glu Gln Lys Asn
 85 90 95
 Leu Tyr Lys Cys Ser Val Cys Gly Lys Gly Phe Gly Ser Tyr Gln Ala
 100 105 110
 Leu Gly Gly His Lys Ala Ser His Arg Lys Leu Val Ser Met Gly Gly
 115 120 125
 Asp Glu Gln Ser Thr Thr Ser Thr Thr Thr Asn Val Thr Gly Thr Ser
 130 135 140
 Ser Ala Asn Val Asn Gly Asn Gly Arg Thr His Glu Cys Ser Ile Cys
 145 150 155 160
 His Lys Cys Phe Pro Thr Gly Gln Ala Leu Gly Gly His Lys Arg Cys
 165 170 175
 His Tyr Asp Gly Gly Asn Gly Asn Gly Asn Gly Ser Val Ser Val Gly
 180 185 190
 Val Thr Ser Ser Glu Gly Val Gly Ser Thr Ile Ser His His Arg Asp
 195 200 205
 Phe Asp Leu Asn Ile Pro Ala Leu Pro Glu Phe Trp Pro Gly Phe Gly
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 Leu Ser Leu Pro Pro Lys Leu Glu Leu Phe Lys Gly Leu
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<210> 22
 <211> 786
 <212> DNA
 <213> Triticum aestivum

<400> 22
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 caggggtggg ccaagaggaa gcgatcgcg cgcagcgct ccgaggagga gaacctcgcg 180
 ctctgcctcc tcatgctctc gcgcggcggc aagcagcgtg ttcaggcgcc gcagccggag 240
 tcgttcgtg cgcgggtgcc tgccgagttc aagtgtccg tctgcggcaa gtccttcagc 300
 tcctaccagg cgctcggagg ccacaagacg agccaccggg tgaagcagcc gtctcctccc 360
 tctgatgcgg ctgctgcccc actcgtggcc ctcccggcgg tcgccgccat cctgccgtcc 420
 gccgagccgg ccacgtcgtc caccgcccgg tcctccgacg gcgcgaccaa cagagtccac 480
 aggtgctcca tctgccaaaa ggagttcccg actgggcagg cgctcggcgg gcacaagagg 540
 aagcactacg acggaggcgt gggcgccgcc gcctcgtcga ccgagcttct ggccgcccgg 600
 gccgcccagt ctgaggtggg gagcaccggc aacgggagct ccgccgcccg ggccttcgac 660
 ctgaacattc cggccgtgcc ggagttcgtg tggaggccgt gcgccaagg caagatgatg 720
 tgggaggacg atgaggaggt gcagagcccc ctgcgcttca agaagcctcg gcttctcacc 780
 gcttga 786

<210> 23
 <211> 261
 <212> PRT
 <213> Triticum aestivum

<400> 23
 Met Ser Ser Ser Ala Met Glu Ala Leu His Ala Leu Ile Pro Glu Gln
 1 5 10 15
 His Gln Leu Asp Val Glu Ala Ala Ala Val Ser Ser Ala Thr Ser
 20 25 30
 Gly Glu Glu Ser Gly His Val Leu Gln Gly Trp Ala Lys Arg Lys Arg
 35 40 45
 Ser Arg Arg Gln Arg Ser Glu Glu Glu Asn Leu Ala Leu Cys Leu Leu
 50 55 60
 Met Leu Ser Arg Gly Gly Lys Gln Arg Val Gln Ala Pro Gln Pro Glu
 65 70 75 80
 Ser Phe Ala Ala Pro Val Pro Ala Glu Phe Lys Cys Ser Val Cys Gly
 85 90 95
 Lys Ser Phe Ser Ser Tyr Gln Ala Leu Gly Gly His Lys Thr Ser His
 100 105 110
 Arg Val Lys Gln Pro Ser Pro Pro Ser Asp Ala Ala Ala Ala Pro Leu
 115 120 125
 Val Ala Leu Pro Ala Val Ala Ala Ile Leu Pro Ser Ala Glu Pro Ala
 130 135 140
 Thr Ser Ser Thr Ala Ala Ser Ser Asp Gly Ala Thr Asn Arg Val His
 145 150 155 160
 Arg Cys Ser Ile Cys Gln Lys Glu Phe Pro Thr Gly Gln Ala Leu Gly

165								170				175			
Gly	His	Lys	Arg	Lys	His	Tyr	Asp	Gly	Gly	Val	Gly	Ala	Ala	Ala	Ser
			180					185					190		
Ser	Thr	Glu	Leu	Leu	Ala	Ala	Ala	Ala	Ala	Glu	Ser	Glu	Val	Gly	Ser
		195					200					205			
Thr	Gly	Asn	Gly	Ser	Ser	Ala	Ala	Arg	Ala	Phe	Asp	Leu	Asn	Ile	Pro
	210					215					220				
Ala	Val	Pro	Glu	Phe	Val	Trp	Arg	Pro	Cys	Ala	Lys	Gly	Lys	Met	Met
225					230					235				240	
Trp	Glu	Asp	Asp	Glu	Glu	Val	Gln	Ser	Pro	Leu	Ala	Phe	Lys	Lys	Pro
				245				250						255	
Arg	Leu	Leu	Thr	Ala											
			260												

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<210> 24
<211> 1026
<212> DNA
<213> Capsicum annum
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[illegible]

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<210> 25
<211> 261
<212> PRT
<213> Capsicum annum
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<400> 25
Met Ala Leu Glu Ala Leu Asn Ser Pro Thr Gly Thr Pro Thr Pro Pro
1          5          10          15
Pro Phe Gln Phe Glu Ser Asp Gly Gln Gln Leu Arg Tyr Ile Glu Asn
20          25          30
Trp Arg Lys Gly Lys Arg Ser Lys Arg Ser Arg Ser Met Glu His Gln

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35 40 45
 Pro Thr Glu Glu Glu Tyr Leu Ala Leu Cys Leu Ile Met Leu Ala Arg
 50 55 60
 Ser Gly Gly Ser Val Asn His Gln Arg Ser Leu Pro Pro Pro Ala Pro
 65 70 75 80
 Val Met Lys Leu His Ala Pro Ser Ser Ser Ser Ala Ala Glu Glu Glu
 85 90 95
 Lys Glu Lys Met Val Tyr Lys Cys Ser Val Cys Gly Lys Gly Phe Gly
 100 105 110
 Ser Tyr Gln Ala Leu Gly Gly His Lys Ala Ser His Arg Lys Leu Val
 115 120 125
 Pro Gly Gly Asp Asp Gln Ser Thr Thr Ser Thr Thr Thr Asn Ala Thr
 130 135 140
 Gly Thr Thr Thr Ser Val Asn Gly Asn Gly Asn Arg Ser Gly Arg Thr
 145 150 155 160
 His Glu Cys Ser Ile Cys His Lys Cys Phe Pro Thr Gly Gln Ala Leu
 165 170 175
 Gly Gly His Lys Arg Cys His Tyr Asp Gly Gly Ile Gly Asn Gly Asn
 180 185 190
 Ala Asn Ser Gly Val Ser Ala Ser Val Gly Val Thr Ser Ser Glu Gly
 195 200 205
 Val Gly Ser Thr Val Ser His Arg Asp Phe Asp Leu Asn Ile Pro Ala
 210 215 220
 Leu Pro Glu Phe Trp Leu Gly Phe Gly Ser Gly Glu Asp Glu Val Glu
 225 230 235 240
 Ser Pro His Pro Ala Lys Lys Ser Arg Leu Cys Leu Pro Pro Lys Tyr
 245 250 255
 Glu Leu Phe Gln His
 260

<210> 26
 <211> 1068
 <212> DNA
 <213> Arabidopsis thaliana

<400> 26
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 actttttctct caaatttctg atcctttgat ccaacagtta gaagaagatt catctgatca 120
 tggccctcga agcgatgaac actccaactt cttctttcac cagaatcgaa acgaaaagaag 180
 atttgatgaa cgacgccgtt ttcattgagc cgtggcttaa acgcaaacgc tccaaacgctc 240
 agcgtttctca cagcccttct tcgtcttctt cctcacgcgc tcgatctcga cccaaatccc 300
 agaatcaaga tcttacggaa gaagagtatc tcgctctttg tctcctcatg ctccgctaaag 360
 atcaaccgctc gcaaacgcga tttcatcaac agtcgcaatc gttaacgccg ccgccagaat 420
 caaagaacct tccgtacaag tgtaacgtct gtgaaaaagc gtttccttcc tatcaggctt 480

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taggcggtca caaagcaagt caccgaatca aaccaccaac cgtaatctca acaaccgccc 540
atgattcaac agctccgacc atctccatcg tcgccggaga aaaacatccg attgctgcct 600
ccggaaagat ccacgagtgt tcaatctgtc ataaagtgtt tccgacgggt caagctttag 660
gcgggtcacaa acgttgtcac tacgaaggca acctcggcgg cggaggagga ggaggaagca 720
aatcaatcag tcacagtgga agcgtgtcga gcacggtatc ggaagaaagg agccaccgtg 780
gattcatcga tctaaacctc ccggcggttac ctgaactcag ccttcatcac aatccaatcg 840
tcgacgaaga gatcttgagt ccgttgaccg gtaaaaaacc gcttttggtg accgatcacg 900
accaagtcac caagaagaa gatttatctt taaaaatcta atactcgact attaattctt 960
gtgtgatttt tttcggtaca accatagttt cattttcatt tttttagtta caaattttta 1020
attgttctga tttggattga atattggtat attgttaggg gttgatac 1068

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<210> 27
<211> 273
<212> PRT
<213> Arabidopsis thaliana

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<400> 27
Met Ala Leu Glu Ala Met Asn Thr Pro Thr Ser Ser Phe Thr Arg Ile
1 5 10 15

Glu Thr Lys Glu Asp Leu Met Asn Asp Ala Val Phe Ile Glu Pro Trp
20 25 30

Leu Lys Arg Lys Arg Ser Lys Arg Gln Arg Ser His Ser Pro Ser Ser
35 40 45

Ser Ser Ser Ser Pro Pro Arg Ser Arg Pro Lys Ser Gln Asn Gln Asp
50 55 60

Leu Thr Glu Glu Glu Tyr Leu Ala Leu Cys Leu Leu Met Leu Ala Lys
65 70 75 80

Asp Gln Pro Ser Gln Thr Arg Phe His Gln Gln Ser Gln Ser Leu Thr
85 90 95

Pro Pro Pro Glu Ser Lys Asn Leu Pro Tyr Lys Cys Asn Val Cys Glu
100 105 110

Lys Ala Phe Pro Ser Tyr Gln Ala Leu Gly Gly His Lys Ala Ser His
115 120 125

Arg Ile Lys Pro Pro Thr Val Ile Ser Thr Thr Ala Asp Asp Ser Thr
130 135 140

Ala Pro Thr Ile Ser Ile Val Ala Gly Glu Lys His Pro Ile Ala Ala
145 150 155 160

Ser Gly Lys Ile His Glu Cys Ser Ile Cys His Lys Val Phe Pro Thr
165 170 175

Gly Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Glu Gly Asn Leu
180 185 190

Gly Gly Gly Gly Gly Gly Gly Ser Lys Ser Ile Ser His Ser Gly Ser
195 200 205

Val Ser Ser Thr Val Ser Glu Glu Arg Ser His Arg Gly Phe Ile Asp
210 215 220

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Leu Asn Leu Pro Ala Leu Pro Glu Leu Ser Leu His His Asn Pro Ile
225 230 235 240

Val Asp Glu Glu Ile Leu Ser Pro Leu Thr Gly Lys Lys Pro Leu Leu
245 250 255

Leu Thr Asp His Asp Gln Val Ile Lys Lys Glu Asp Leu Ser Leu Lys
260 265 270

Ile

<210> 28
<211> 976
<212> DNA
<213> Arabidopsis thaliana

<400> 28
aaatcaaate ttttcattta caattatctt tcttctcaat ttagaactta gtagctagtc 60
ttcaagataa tggcacttga aactcttact tctccaagat tatcttctcc gatgccgact 120
ctgtttcaag attcagcact agggtttcat ggaagcaaag gcaaacgac taagcgatca 180
agatctgaat togaccgtca gagtctcacg gaggatgaat atatcgcttt atgtctcatg 240
cttcttgctc ggcacggaga tagaaaccgt gaccttgacc tgccttcttc ttctgtcttca 300
cctcctctgc ttctcctctc tctactccg atctacaagt gtagcgtctg tgacaaggcg 360
ttttcgtctt accaggctct tgggtggacac aaggcaagtc accggaaaag cttttcgtct 420
actcaatctg ccggaggaga tgagctgtcg acatcgctcg cgataaccac gtctgggtata 480
tccgggtggcg ggggagggaag tgtgaagtcg cacgtttgct ctatctgtca taaatcgttc 540
gccaccggtc aagctctcgg cggccacaaa cggtgccact acgaaggaaa gaacggaggc 600
ggtgtgagta gtagcgtgtc gaattctgaa gatgtggggt ctacaagcca cgtcagcagt 660
ggccaccgtg gggttgacct caacataccg ccgataccgg aattctcgat ggtcaacgga 720
gacgaagagg tgatgagtcc tatgccggcg aagaaactcc gggttgactt cccggagaaa 780
ccctaaacat aaacctagga aaaactttac agaattcatt ttataggaaa ttgttttact 840
gtatatacaa atatcgattt tgattgatgt tcttcttcac tgaaaaatta tgattctttg 900
ttgtataatt gatgtttctg aaaaagatat aactttttat tgtttcacac gtatcaaaa 960
ttgcttgat acatca 976

<210> 29
<211> 238
<212> PRT
<213> Arabidopsis thaliana

<400> 29
Met Ala Leu Glu Thr Leu Thr Ser Pro Arg Leu Ser Ser Pro Met Pro
1 5 10 15
Thr Leu Phe Gln Asp Ser Ala Leu Gly Phe His Gly Ser Lys Gly Lys
20 25 30
Arg Ser Lys Arg Ser Arg Ser Glu Phe Asp Arg Gln Ser Leu Thr Glu
35 40 45
Asp Glu Tyr Ile Ala Leu Cys Leu Met Leu Leu Ala Arg Asp Gly Asp
50 55 60
Arg Asn Arg Asp Leu Asp Leu Pro Ser Ser Ser Ser Ser Pro Pro Leu
65 70 75 80

Leu Pro Pro Leu Pro Thr Pro Ile Tyr Lys Cys Ser Val Cys Asp Lys
 85 90 95
 Ala Phe Ser Ser Tyr Gln Ala Leu Gly His Lys Ala Ser His Arg
 100 105 110
 Lys Ser Phe Ser Leu Thr Gln Ser Ala Gly Gly Asp Glu Leu Ser Thr
 115 120 125
 Ser Ser Ala Ile Thr Thr Ser Gly Ile Ser Gly Gly Gly Gly Ser
 130 135 140
 Val Lys Ser His Val Cys Ser Ile Cys His Lys Ser Phe Ala Thr Gly
 145 150 155 160
 Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Glu Gly Lys Asn Gly
 165 170 175
 Gly Gly Val Ser Ser Ser Val Ser Asn Ser Glu Asp Val Gly Ser Thr
 180 185 190
 Ser His Val Ser Ser Gly His Arg Gly Phe Asp Leu Asn Ile Pro Pro
 195 200 205
 Ile Pro Glu Phe Ser Met Val Asn Gly Asp Glu Glu Val Met Ser Pro
 210 215 220
 Met Pro Ala Lys Lys Leu Arg Phe Asp Phe Pro Glu Lys Pro
 225 230 235

<210> 30
 <211> 718
 <212> DNA
 <213> Arabidopsis thaliana

<400> 30
 atggctctcg acactctcaa ttctcccacc tccaccacca caaccaccgc tcctctctcct 60
 ttctctcggtt gctcgcacga aaccgagccc gaaaacctcg aatcatggac caaaagaaaa 120
 cgtacaaaaac gtcaccgtat agatcaacca aaccctcctc cttctgaaga agagtatctc 180
 gctctttggc tccttatgct cgctcgtggc tcctccgac atcactctcc accgtcggat 240
 catcactctc ttctctccact gtccgatcat cagaaagatt acaagtgttc cgtctgtggc 300
 aaatctttcc cgtcttacca agcgttaggt ggacacaaaa caagtcaccg gaaaccgggt 360
 agtgtcgtatg ttaataatag taacggaacc gttactaata acggaatat tagtaacgggt 420
 ttagttggtc aaagtgggaa gactcataac tgctctatat gttttaagtc gtttccctct 480
 ggtcaagcat tgggtgggtca caaacgttgt cactatgatg gtggtaacgg taacagtaac 540
 ggtgacaata gccacaagtt tgacctaaat ttaccggctg atcaagtttag tgatgagaca 600
 attggaaaaa gtcaactctc cgggtgaagaa acaaagtcgg tgttggtgatt attattattt 660
 ttaccgatc gggattagct agtgggtgat cattagctga gtctgtaatg aaaatgat 718

<210> 31
 <211> 215
 <212> PRT
 <213> Arabidopsis thaliana

<400> 31
 Met Ala Leu Asp Thr Leu Asn Ser Pro Thr Ser Thr Thr Thr Thr Thr
 1 5 10 15

Ala Pro Pro Pro Phe Leu Arg Cys Leu Asp Glu Thr Glu Pro Glu Asn
 20 25 30
 Leu Glu Ser Trp Thr Lys Arg Lys Arg Thr Lys Arg His Arg Ile Asp
 35 40 45
 Gln Pro Asn Pro Pro Pro Ser Glu Glu Glu Tyr Leu Ala Leu Cys Leu
 50 55 60
 Leu Met Leu Ala Arg Gly Ser Ser Asp His His Ser Pro Pro Ser Asp
 65 70 75 80
 His His Ser Leu Ser Pro Leu Ser Asp His Gln Lys Asp Tyr Lys Cys
 85 90 95
 Ser Val Cys Gly Lys Ser Phe Pro Ser Tyr Gln Ala Leu Gly Gly His
 100 105 110
 Lys Thr Ser His Arg Lys Pro Val Ser Val Asp Val Asn Asn Ser Asn
 115 120 125
 Gly Thr Val Thr Asn Asn Gly Asn Ile Ser Asn Gly Leu Val Gly Gln
 130 135 140
 Ser Gly Lys Thr His Asn Cys Ser Ile Cys Phe Lys Ser Phe Pro Ser
 145 150 155 160
 Gly Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Asp Gly Gly Asn
 165 170 175
 Gly Asn Ser Asn Gly Asp Asn Ser His Lys Phe Asp Leu Asn Leu Pro
 180 185 190
 Ala Asp Gln Val Ser Asp Glu Thr Ile Gly Lys Ser Gln Leu Ser Gly
 195 200 205
 Glu Glu Thr Lys Ser Val Leu
 210 215

<210> 32
 <211> 702
 <212> DNA
 <213> Arabidopsis thaliana

<400> 32
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 ttaagattca atggcggtga gcagtggacc aaatgtaaga aacgatccaa acgttcgaga 120
 tctgatcttc atcataacca ccgtctcact gaggaagagt atctagcttt ctgtctcatg 180
 cttcttgctc gggatggcgg cgatcttgac tctgtgacgg ttgctggagaa gccgagttat 240
 aagtgtggcg tttgttacaa gacgttttcg tcttaccaag ctctcggcgg tcataaagcg 300
 agccaccgga gcttatacgg tgggtggagag aatgataaat cgacaccatc caccgccgtg 360
 aaatctcacg tttgttcggt ttgctgggaaa tctttcgcca ccggtcaagc tctcggcggc 420
 cacaagcggg gccactacga tgggtggcgtt tcgaactcgg aaggtgtggg gtctactagc 480
 cacgtcagca gtagtagcca ccgtggattt gaccttaata ttataccggt gcagggattt 540
 tcgcccggacg acgaagtgat gagtccgatg gcgactaaga agcctcgcct gaagtaagtc 600
 tttgttgaag acctggaagt ttatcaaagt taaatatcaa atttcaattt caaggaacag 660
 tttgttgat tctattacca atacacaata cgattcaatt cc 702

<210> 33
 <211> 193
 <212> PRT
 <213> Arabidopsis thaliana

<400> 33
 Met Ala Leu Glu Ala Leu Asn Ser Pro Arg Leu Val Glu Asp Pro Leu
 1 5 10 15
 Arg Phe Asn Gly Val Glu Gln Trp Thr Lys Cys Lys Lys Arg Ser Lys
 20 25 30
 Arg Ser Arg Ser Asp Leu His His Asn His Arg Leu Thr Glu Glu Glu
 35 40 45
 Tyr Leu Ala Phe Cys Leu Met Leu Leu Ala Arg Asp Gly Gly Asp Leu
 50 55 60
 Asp Ser Val Thr Val Ala Glu Lys Pro Ser Tyr Lys Cys Gly Val Cys
 65 70 75 80
 Tyr Lys Thr Phe Ser Ser Tyr Gln Ala Leu Gly Gly His Lys Ala Ser
 85 90 95
 His Arg Ser Leu Tyr Gly Gly Gly Glu Asn Asp Lys Ser Thr Pro Ser
 100 105 110
 Thr Ala Val Lys Ser His Val Cys Ser Val Cys Gly Lys Ser Phe Ala
 115 120 125
 Thr Gly Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Asp Gly Gly
 130 135 140
 Val Ser Asn Ser Glu Gly Val Gly Ser Thr Ser His Val Ser Ser Ser
 145 150 155 160
 Ser His Arg Gly Phe Asp Leu Asn Ile Ile Pro Val Gln Gly Phe Ser
 165 170 175
 Pro Asp Asp Glu Val Met Ser Pro Met Ala Thr Lys Lys Pro Arg Leu
 180 185 190
 Lys

<210> 34
 <211> 1157
 <212> DNA
 <213> Arabidopsis thaliana

<400> 34
 cacacttcac tctttcttca tcttcttctt cttaaatagc tcgaaatcac atctcacaga 60
 attaaatctt atggctctcg agactctcaa ttctccaaca gctaccacca ccgctcggcc 120
 tcttctccgg tatcgtgaag aaatggagcc tgagaatctc gagcaatggg ctaaaagaaa 180
 acgaacaaaa cgtcaacggt ttgatcacgg tcatcagaat caagaaacga acaagaacct 240
 tcctttctgaa gaagagtatc tcgctctttg tctcctcatg ctcgctcgtg gctccgccgt 300
 acaatctcct cctcttctc ctctaccgtc acgtgcgtca ccgtccgac accgagatta 360
 caagtgtacg gtctgtggga agtccttttc gtcataccaa gccttaggtg gacacaagac 420

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gagtcaccgg aaaccgacga acactagtat cacttccggt aaccaagaac tgtctaataa 480
cagtcacagt aacagcgggt ccgttggtat taacggtacc gtgaacactg gtaacggtgt 540
tagtcaaagc ggaaagattc acacttgctc aatctgtttc aagtcgtttg cgtctggtca 600
agccttaggt ggacacaaac ggtgtcacta tgacgggtggc aacaacggta acggtaacgg 660
aagtagcagc aacagcgtag aactcgtcgc tggtagtgac gtcagcgatg ttgataatga 720
gagatggtcc gaagaaagtg cgatcggtgg ccaccgtgga tttgacctaa acttaccggc 780
tgatcaagtc tcagtgaaga cttcttaacg ttgactgagt ttgaggaaaa agtcaactat 840
caagcgaaga aagggttagt ggacggtgaa gattaacggt cgtttctttc cagttgcttc 900
ggtttgagct tgactgggtc tgtaatgaaa atgattggag tggacttggc attattatta 960
ttatttttaa aaagaaatgt taatttggtt ttggatttgt ttatagatag aggaaacaat 1020
tgggatacac aaatattttt tttttttaca aagaaaataa taatgcagag atggatgatt 1080
ggatcgtaga cgttattata tagtggacca ttctgtaatc gtgaattatt attatttgtt 1140
agaaatttaa ttttcgt 1157

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<210> 35
 <211> 245
 <212> PRT
 <213> Arabidopsis thaliana

<400> 35
 Met Ala Leu Glu Thr Leu Asn Ser Pro Thr Ala Thr Thr Thr Ala Arg
 1 5 10 15
 Pro Leu Leu Arg Tyr Arg Glu Glu Met Glu Pro Glu Asn Leu Glu Gln
 20 25 30
 Trp Ala Lys Arg Lys Arg Thr Lys Arg Gln Arg Phe Asp His Gly His
 35 40 45
 Gln Asn Gln Glu Thr Asn Lys Asn Leu Pro Ser Glu Glu Glu Tyr Leu
 50 55 60
 Ala Leu Cys Leu Leu Met Leu Ala Arg Gly Ser Ala Val Gln Ser Pro
 65 70 75 80
 Pro Leu Pro Pro Leu Pro Ser Arg Ala Ser Pro Ser Asp His Arg Asp
 85 90 95
 Tyr Lys Cys Thr Val Cys Gly Lys Ser Phe Ser Ser Tyr Gln Ala Leu
 100 105 110
 Gly Gly His Lys Thr Ser His Arg Lys Pro Thr Asn Thr Ser Ile Thr
 115 120 125
 Ser Gly Asn Gln Glu Leu Ser Asn Asn Ser His Ser Asn Ser Gly Ser
 130 135 140
 Val Val Ile Asn Val Thr Val Asn Thr Gly Asn Gly Val Ser Gln Ser
 145 150 155 160
 Gly Lys Ile His Thr Cys Ser Ile Cys Phe Lys Ser Phe Ala Ser Gly
 165 170 175
 Gln Ala Leu Gly Gly His Lys Arg Cys His Tyr Asp Gly Gly Asn Asn
 180 185 190
 Gly Asn Gly Asn Gly Ser Ser Ser Asn Ser Val Glu Leu Val Ala Gly
 195 200 205

Ser Asp Val Ser Asp Val Asp Asn Glu Arg Trp Ser Glu Glu Ser Ala
210 215 220

Ile Gly Gly His Arg Gly Phe Asp Leu Asn Leu Pro Ala Asp Gln Val
225 230 235 240

Ser Val Thr Thr Ser
245

<210> 36
<211> 1213
<212> DNA
<213> Oryza sativa

<400> 36
aattcggcac gaggccacac agcaaccagc cagctgccac actagcttga ggcgagcgag 60
cgaagcttag ctagecgata gaacaagtcg tcgatctgct tgctgctttt gtgaattgag 120
gtggaagcat gtcgagcgcg tcgtccatgg aagcgctcca cgccgcggtg ctcaaggagg 180
agcagcagca gcacgaggtg gaggaggcga cggctcgtgac gagcagcagc gccacgagcg 240
gggaggaggg cggacacctg ccccaggggg gggcgaagcg gaagcgggtc cgccgccagc 300
gatcggagga ggagaacctc gcgctctgcc tcctcatgct cgcccgcggc ggccaccacc 360
gcgtccaggc gccgcctccg ctctcggctt cgccgccccg gccggcagggt gcggagttca 420
agtgtccgt ctgcggcaag tccttcagct cctaccaggc gctcggcggc cacaagacga 480
gccaccgggt caagctgccc actccgcccg cagctcccgt cttgggtccc gcccccgctc 540
ccgccttgct gccttcggcc gaggaccgag agccagccac gtcattccacc gccgcgtcct 600
ccgacggcat gaccaacaga gtccacaggt gttccatctg ccagaaggag ttccccaccg 660
ggcaggcgct cggcgggcac aagagggaag actacgacgg tggcgtaggc gccggcgccg 720
gcgcattctt aaccgagctc ctggccacgg tggccgccga gtccgaggtg ggaagctccg 780
gcaacggcca gtccgccacc cgggcgttcg acctcaacct ccggcgctg ccggagttcg 840
tgtggcgcc gtgctccaag ggcaagaaga tgtgggacga ggaggaggag gtccagagcc 900
ccctgcctt caagaagccc cggcttctca ccgcgtaatt cagcagctgc acggatccga 960
tccgtcagag tttttgtcta gggagtgaat ttcagtcgaa acacactatt cgttgattcg 1020
ttttgtgcc ctattgttta atttgttcct gctttgttac agagcaagcg agtgatacat 1080
agccatacat acagtcatat agatataggt ctagctcttc cttggttctt tgtaacatg 1140
gaactgtacc tgtattcttt acactttgtt ctttgacagt catatattgt agaccaaaaa 1200
aaaaaaaaaaa aaa 1213

<210> 37
<211> 269
<212> PRT
<213> Oryza sativa

<400> 37
Met Ser Ser Ser Ala Ser Ser Met Glu Ala Leu His Ala Ala Val Leu Lys
1 5 10 15
Glu Glu Gln Gln Gln His Glu Val Glu Glu Ala Thr Val Val Thr Ser
20 25 30
Ser Ser Ala Thr Ser Gly Glu Glu Gly Gly His Leu Pro Gln Gly Trp
35 40 45
Ala Lys Arg Lys Arg Ser Arg Arg Gln Arg Ser Glu Glu Glu Asn Leu
50 55 60
Ala Leu Cys Leu Leu Met Leu Ala Arg Gly Gly His His Arg Val Gln
65 70 75 80

Ala Pro Pro Pro Leu Ser Ala Ser Ala Pro Pro Pro Ala Gly Ala Glu
85 90 95

Phe Lys Cys Ser Val Cys Gly Lys Ser Phe Ser Ser Tyr Gln Ala Leu
100 105 110

Gly Gly His Lys Thr Ser His Arg Val Lys Leu Pro Thr Pro Pro Ala
115 120 125

Ala Pro Val Leu Ala Pro Ala Pro Val Ala Ala Leu Leu Pro Ser Ala
130 135 140

Glu Asp Arg Glu Pro Ala Thr Ser Ser Thr Ala Ala Ser Ser Asp Gly
145 150 155 160

Met Thr Asn Arg Val His Arg Cys Ser Ile Cys Gln Lys Glu Phe Pro
165 170 175

Thr Gly Gln Ala Leu Gly Gly His Lys Arg Lys His Tyr Asp Gly Gly
180 185 190

Val Gly Ala Gly Ala Gly Ala Ser Ser Thr Glu Leu Leu Ala Thr Val
195 200 205

Ala Ala Glu Ser Glu Val Gly Ser Ser Gly Asn Gly Gln Ser Ala Thr
210 215 220

Arg Ala Phe Asp Leu Asn Leu Pro Ala Val Pro Glu Phe Val Trp Arg
225 230 235 240

Pro Cys Ser Lys Gly Lys Lys Met Trp Asp Glu Glu Glu Glu Val Gln
245 250 255

Ser Pro Leu Ala Phe Lys Lys Pro Arg Leu Leu Thr Ala
260 265

<210> 38
<211> 528
<212> DNA
<213> Arabidopsis thaliana

<400> 38
atgaagagag accggtccga ttacgaagaa tccatgaagc atatagacat agtagaaagt 60
ctaattgatgt tatctcgaag ttctcgtggc aaacaaatcg atgtaaagca atctaccgga 120
agcaaaacga accataataa ccacttcgaa tgcaaaacgt gtaaccggaa atttgattcc 180
ttccaagctc ttggagggtca tagagctagc cacaagaaac ctaagctgat cgttgaccaa 240
gaacaggtga agcatcgtaa caaagagaat gatatgcata agtgtacaat ttgcgatcaa 300
atgtttggga ccggtcaagc tctaggcggc cacatgagaa agcataggac gagcatgata 360
accgagcaat cgattgtccc ttctgtgggt tattccagac cggtttttaa tcgttgcaat 420
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<210> 39
<211> 175
<212> PRT
<213> Arabidopsis thaliana

<400> 39

Met Lys Arg Asp Arg Ser Asp Tyr Glu Glu Ser Met Lys His Ile Asp
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 20 25 30
 Ile Asp Val Lys Gln Ser Thr Gly Ser Lys Thr Asn His Asn Asn His
 35 40 45
 Phe Glu Cys Lys Thr Cys Asn Arg Lys Phe Asp Ser Phe Gln Ala Leu
 50 55 60
 Gly Gly His Arg Ala Ser His Lys Lys Pro Lys Leu Ile Val Asp Gln
 65 70 75 80
 Glu Gln Val Lys His Arg Asn Lys Glu Asn Asp Met His Lys Cys Thr
 85 90 95
 Ile Cys Asp Gln Met Phe Gly Thr Gly Gln Ala Leu Gly Gly His Met
 100 105 110
 Arg Lys His Arg Thr Ser Met Ile Thr Glu Gln Ser Ile Val Pro Ser
 115 120 125
 Val Val Tyr Ser Arg Pro Val Phe Asn Arg Cys Ser Ser Ser Lys Glu
 130 135 140
 Ile Leu Asp Leu Asn Leu Thr Pro Leu Glu Asn Asp Leu Val Leu Ile
 145 150 155 160
 Phe Gly Lys Asn Leu Val Pro Gln Ile Asp Leu Lys Phe Val Asn
 165 170 175

<210> 40

<211> 820

<212> DNA

<213> Saccharum officinarum

<220>

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<222> (406)..(406)

<223> n can be any nucleotide

<220>

<221> misc_feature

<222> (581)..(582)

<223> n can be any nucleotide

<220>

<221> misc_feature

<222> (589)..(589)

<223> n can be any nucleotide

<400> 40

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 cccacgacga ctacgtctcc ctctgcctca tggcgctcgc agccgcggga ggcggaggcc 120


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aagctggttt aacaacgcag tacgctctga acacggctgc ctggacagcg acggcgcaag 180
agtccgagct ccgcttcagg tgctccgtct gtggcaaggc cttcgcgctc caccaggcac 240
tgggcgggca caaggccagc caccgcaagc cgacgctcgt acaggcacat gcgtcgtcct 300
cagccggagg cgcgcgctcg tcgtcggtaa caatgacctc ggccgtaggc agcagtgggc 360
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ggcacaagag gtgccattac tgggacgggc tctcggtgtc gtcaccgcg tcgtcggcgc 480
catcggggtc cgggtcgacc gtcaagggtc ttgatctgaa tttggtgccc gtgccgccc 540
cgatggccgc caacgctcgc acaagggtgg gagaggagaa nnaagtcana aacccttggc 600
ggtcaagaga aggcggcttg ccggtccgtc ttggacccta atttaacgat ttagaagtcc 660
tttttttaat aattaagagt tcttttgaag aaggttgtaa agttttcgaa ccttgttctt 720
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<210> 41
 <211> 1509
 <212> DNA
 <213> Arabidopsis thaliana

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<400> 41
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ctcactctct tctctctgtt actcctccct cttcttctt cttcttccct caatccggag 180
acctccgcgc tccaccgcgc ccaccaactc ctctctcttc tcctctctc cgagaagccc 240
tccctctcct cagcctcagc cccgccaaca aacaacaaga ccaccatcac aaccatgacc 300
accttattca agaaccacct tcaacctcca tggatgtcga ctacgatcat caccatcaag 360
atgatcatca taacctcgat gacgatgacc atgacgtcac cgttgctctt cacataggcc 420
ttccaagccc tagtgctcaa gagatggcct ctttgctcat gatgtcttct tcttctctt 480
cctcgaggac cactcatcat cacgaggaca tgaatcaca gaaagacctc gaccatgagt 540
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gcggctgtag aatcagcaga ctcaacaagg gtcaatattg gatccctaca ccttctcaga 660
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ataacatgca gatgcatacg tggggacatg gatcacaata cagaaaagga cctgaatctc 780
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tattgcaaga caatgtagca gtctaacc aaaggttccc aacggtttat ttctatttgt 1440
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taaattatg 1509

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<210> 42
 <211> 383
 <212> PRT
 <213> Arabidopsis thaliana

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<400> 42
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Pro Phe His His Tyr Pro Asn Ser Ser Thr Asn Pro Ser Pro His Pro
20          25          30

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Leu Pro Pro Val Thr Pro Pro Ser Ser Phe Phe Phe Phe Pro Gln Ser
 35 40 45
 Gly Asp Leu Arg Arg Pro Pro Pro Pro Thr Pro Pro Pro Ser Pro
 50 55 60
 Pro Leu Arg Glu Ala Leu Pro Leu Leu Ser Leu Ser Pro Ala Asn Lys
 65 70 75 80
 Gln Gln Asp His His His Asn His Asp His Leu Ile Gln Glu Pro Pro
 85 90 95
 Ser Thr Ser Met Asp Val Asp Tyr Asp His His His Gln Asp Asp His
 100 105 110
 His Asn Leu Asp Asp Asp Asp His Asp Val Thr Val Ala Leu His Ile
 115 120 125
 Gly Leu Pro Ser Pro Ser Ala Gln Glu Met Ala Ser Leu Leu Met Met
 130 135 140
 Ser Ser Ser Ser Ser Ser Ser Arg Thr Thr His His His Glu Asp Met
 145 150 155 160
 Asn His Lys Lys Asp Leu Asp His Glu Tyr Ser His Gly Ala Val Gly
 165 170 175
 Gly Gly Glu Asp Asp Asp Glu Asp Ser Val Gly Gly Asp Gly Gly Cys
 180 185 190
 Arg Ile Ser Arg Leu Asn Lys Gly Gln Tyr Trp Ile Pro Thr Pro Ser
 195 200 205
 Gln Ile Leu Ile Gly Pro Thr Gln Phe Ser Cys Pro Val Cys Phe Lys
 210 215 220
 Thr Phe Asn Arg Tyr Asn Asn Met Gln Met His Met Trp Gly His Gly
 225 230 235 240
 Ser Gln Tyr Arg Lys Gly Pro Glu Ser Leu Arg Gly Thr Gln Pro Thr
 245 250 255
 Gly Met Leu Arg Leu Pro Cys Tyr Cys Cys Ala Pro Gly Cys Arg Asn
 260 265 270
 Asn Ile Asp His Pro Arg Ala Lys Pro Leu Lys Asp Phe Arg Thr Leu
 275 280 285
 Gln Thr His Tyr Lys Arg Lys His Gly Ile Lys Pro Phe Met Cys Arg
 290 295 300
 Lys Cys Gly Lys Ala Phe Ala Val Arg Gly Asp Trp Arg Thr His Glu
 305 310 315 320
 Lys Asn Cys Gly Lys Leu Trp Tyr Cys Ile Cys Gly Ser Asp Phe Lys
 325 330 335
 His Lys Arg Ser Leu Lys Asp His Ile Lys Ala Phe Gly Asn Gly His

340 345 350

Gly Ala Tyr Gly Ile Asp Gly Phe Asp Glu Glu Asp Glu Pro Ala Ser
355 360 365

Glu Val Glu Gln Leu Asp Asn Asp His Glu Ser Met Gln Ser Lys
370 375 380

<210> 43
<211> 1303
<212> DNA
<213> Arabidopsis thaliana

<400> 43

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taatccagct	tgttcgaatc	tcttcaacaa	tggtatgtgac	cataatagct	tcaactattc	180
cacttctctc	tcttacattt	acaactctca	cggtagctac	tattactcta	ataccacaaa	240
ccctaattac	attaatcata	ctcataccac	ttccacttcc	cctaactcac	ccccactaag	300
agaagctctt	cctcttctta	gcttaagccc	cataaggcac	caagaacaac	aagaccaaca	360
ctatttcatg	gacacccatc	aaattagctc	ttcaaacttt	cttgatgatc	ctcttgtgac	420
tggtgatctt	catctagggt	taccaaacta	cggtgttggt	gagagcatta	ggagcaatat	480
tgctcctgat	gcaaccacgg	acgagcaaga	tcaagatcat	gaccgaggag	tagaagtcac	540
agttgagtc	caccttgatg	atgatgatga	tcatcatgga	gatctacaca	gaggtcatca	600
ctattggatt	cctactcctt	ctcagatttt	gattggtcct	acacagttca	cttgctcctt	660
ttgcttcaag	acattcaaca	gatacaacaa	catgcagatg	cacatgtggg	gacacggctc	720
acaatacaga	aagggaccag	aatccttaag	aggaacccaa	ccaacaggaa	tgctaagact	780
accatgtttc	tgctgtgcac	ccggttgcaa	gaacaacatt	gaccacccac	gagccaagcc	840
tcttaaggac	tttcgaaccc	tccaaacaca	ttacaaacgt	aaacatgggt	ctaaaccatt	900
tgcttgtcgt	atgtgtggta	aggcctttgc	agtgaaagga	gattggagaa	cgcattgagaa	960
gaattgtgga	aagctttggt	attgctcttg	tggtctcggt	tttaagcaca	agaggtcgtc	1020
taaggaccat	gtcaaggcct	ttgaaaatgg	tcatgttcoct	tgtgggattg	atagttttgg	1080
aggagatcat	gaggactact	atgatgtctg	ttctgatatc	gagcaataag	atgatagcaa	1140
caacaatgag	tggttaattag	gggttttggt	tatttttcoct	ctcatgcatt	agttgattgt	1200
atgcacgtgt	tcttttagttt	tgttcttcgg	atctttggtt	tatttttggtt	tgagctgttt	1260
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<210> 44
<211> 337
<212> PRT
<213> Arabidopsis thaliana

<400> 44

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Asn	Ser	Phe	Asn	Tyr	Ser	Thr	Ser	Leu	Ser	Tyr	Ile	Tyr	Asn	Ser	His
			20					25					30		
Gly	Ser	Tyr	Tyr	Tyr	Ser	Asn	Thr	Thr	Asn	Pro	Asn	Tyr	Ile	Asn	His
			35				40					45			
Thr	His	Thr	Thr	Ser	Thr	Ser	Pro	Asn	Ser	Pro	Pro	Leu	Arg	Glu	Ala
			50				55					60			
Leu	Pro	Leu	Leu	Ser	Leu	Ser	Pro	Ile	Arg	His	Gln	Glu	Gln	Gln	Asp
					70				75					80	

Gln	His	Tyr	Phe	Met	Asp	Thr	His	Gln	Ile	Ser	Ser	Ser	Asn	Phe	Leu	
				85					90					95		
Asp	Asp	Pro	Leu	Val	Thr	Val	Asp	Leu	His	Leu	Gly	Leu	Pro	Asn	Tyr	
				100					105					110		
Gly	Val	Gly	Glu	Ser	Ile	Arg	Ser	Asn	Ile	Ala	Pro	Asp	Ala	Thr	Thr	
				115					120					125		
Asp	Glu	Gln	Asp	Gln	Asp	His	Asp	Arg	Gly	Val	Glu	Val	Thr	Val	Glu	
				130					135					140		
Ser	His	Leu	Asp	Asp	Asp	Asp	Asp	His	His	Gly	Asp	Leu	His	Arg	Gly	
				145					150					155		
His	His	Tyr	Trp	Ile	Pro	Thr	Pro	Ser	Gln	Ile	Leu	Ile	Gly	Pro	Thr	
				165					170					175		
Gln	Phe	Thr	Cys	Pro	Leu	Cys	Phe	Lys	Thr	Phe	Asn	Arg	Tyr	Asn	Asn	
				180					185					190		
Met	Gln	Met	His	Met	Trp	Gly	His	Gly	Ser	Gln	Tyr	Arg	Lys	Gly	Pro	
				195					200					205		
Glu	Ser	Leu	Arg	Gly	Thr	Gln	Pro	Thr	Gly	Met	Leu	Arg	Leu	Pro	Cys	
				210					215					220		
Phe	Cys	Cys	Ala	Pro	Gly	Cys	Lys	Asn	Asn	Ile	Asp	His	Pro	Arg	Ala	
				225					230					235		
Lys	Pro	Leu	Lys	Asp	Phe	Arg	Thr	Leu	Gln	Thr	His	Tyr	Lys	Arg	Lys	
				245					250					255		
His	Gly	Ser	Lys	Pro	Phe	Ala	Cys	Arg	Met	Cys	Gly	Lys	Ala	Phe	Ala	
				260					265					270		
Val	Lys	Gly	Asp	Trp	Arg	Thr	His	Glu	Lys	Asn	Cys	Gly	Lys	Leu	Trp	
				275					280					285		
Tyr	Cys	Ser	Cys	Gly	Ser	Asp	Phe	Lys	His	Lys	Arg	Ser	Leu	Lys	Asp	
				290					295					300		
His	Val	Lys	Ala	Phe	Gly	Asn	Gly	His	Val	Pro	Cys	Gly	Ile	Asp	Ser	
				305					310					315		
Phe	Gly	Gly	Asp	His	Glu	Asp	Tyr	Tyr	Asp	Ala	Ala	Ser	Asp	Ile	Glu	
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Gln

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<210> 45
<211> 495
<212> DNA
<213> Arabidopsis thaliana
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<400> 45
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aaactcatta acagtagcga tccatcactt cttggatcct tgtctaaca gaaaactaaa 240
acggcgacgt ctcacacctg tccgatatgt ggcgtggagt ttccgatggg gcaagctctt 300
ggtggtcaca tgaggagaca taggagtga aaagcctcac caggcacgtt ggttacacgt 360
tcttttttac cggagacgac gacggtgacg actttgaaaa aatcgagtag tgggaagaga 420
gtggcttggt tggacttaga ttcgatggag agtttagtca attggaagtt ggagttggga 480
agaacgattt cttga 495

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<210> 46

<211> 164

<212> PRT

<213> Arabidopsis thaliana

<400> 46

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Met Val Ala Arg Ser Glu Glu Val Glu Ile Val Glu Asp Thr Ala Ala
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Lys Cys Leu Met Leu Leu Ser Arg Val Gly Glu Cys Gly Gly Gly Gly
20 25 30

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```

Glu Lys Arg Val Phe Arg Cys Lys Thr Cys Leu Lys Glu Phe Ser Ser
35 40 45

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```

Phe Gln Ala Leu Gly Gly His Arg Ala Ser His Lys Lys Leu Ile Asn
50 55 60

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```

Ser Ser Asp Pro Ser Leu Leu Gly Ser Leu Ser Asn Lys Lys Thr Lys
65 70 75 80

```

```

Thr Ala Thr Ser His Pro Cys Pro Ile Cys Gly Val Glu Phe Pro Met
85 90 95

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```

Gly Gln Ala Leu Gly Gly His Met Arg Arg His Arg Ser Glu Lys Ala
100 105 110

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Ser Pro Gly Thr Leu Val Thr Arg Ser Phe Leu Pro Glu Thr Thr Thr
115 120 125

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Val Thr Thr Leu Lys Lys Ser Ser Ser Gly Lys Arg Val Ala Cys Leu
130 135 140

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Asp Leu Asp Ser Met Glu Ser Leu Val Asn Trp Lys Leu Glu Leu Gly
145 150 155 160

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Arg Thr Ile Ser

<210> 47

<211> 1209

<212> DNA

<213> Arabidopsis thaliana

<400> 47

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attactcggg cacagaaaga aacagaaaag tctacgaacc aacagcaaga tggtacttgt 120
tactatgggc taagggaaaa ctcgaagaag aaaacccagg aatctccgga accaatgaag 180
aagattttgt ttcgatgcga agaattgga aaagggtttc ggtacgagaa atattttaag 240

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aatcatcgct cgatgatgca tttatcgccg aacgagaagg tttgtgaaga atccttgatg 300
actctgtctc gtagccttgg gtttgtgaag aagaagaaaa gatcaagact tggtaggtct 360
gggaagactt tatttactac gtttcttgaa ccgagttcta tttttgatgc gactgatgaa 420
gaattagaag tggcggtattg tttgattcta ttgtctaaga gtgctcccaa ggttgtagac 480
gaattgaaaa gtctttctga ggcagtacgt gttactcctg aaacacctga aagtagctat 540
gatttgggtt gtttgctcaa caagaaaccg agaaaagggtg gtgaattgga atctgggggtt 600
ttaagtaatg agcaaagact tatggaagaa gggtttagta gttatggaac atcgaaagaa 660
ccagctagct tcttgagaga cgaaaacaga ttggatcagc agaaacggag aaaagatggg 720
gaatttgaat cgggactttt gagtaatgag caaagactgc tagaagaaga gattactact 780
cctgtgacat tcaaagggtcc agcgagttcc ttgagacaca agtgtgcttt ggatcgaaat 840
ggaggtgaat ttggctctga gtttttgagt aatgagcaaa cactgatgga agaaacatgg 900
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actctgtga                                     1209

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<210> 48
 <211> 402
 <212> PRT
 <213> Arabidopsis thaliana

<400> 48
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 Arg Asp Leu Lys Ile Thr Arg Ser Gln Lys Glu Thr Glu Lys Ser Thr
 20 25 30
 Asn Gln Gln Gln Asp Val Thr Cys Tyr Tyr Gly Leu Arg Glu Asn Ser
 35 40 45
 Lys Lys Lys Thr Gln Glu Ser Pro Glu Pro Met Lys Lys Ile Leu Phe
 50 55 60
 Arg Cys Glu Glu Cys Gly Lys Gly Phe Arg Tyr Glu Lys Tyr Phe Lys
 65 70 75 80
 Asn His Arg Ser Met Met His Leu Ser Pro Asn Glu Lys Val Cys Glu
 85 90 95
 Glu Ser Leu Met Thr Leu Ser Arg Ser Leu Gly Phe Val Lys Lys Lys
 100 105 110
 Lys Arg Ser Arg Leu Gly Arg Ser Gly Lys Thr Leu Phe Thr Thr Phe
 115 120 125
 Leu Glu Pro Ser Ser Ile Phe Asp Ala Thr Asp Glu Glu Leu Glu Val
 130 135 140
 Ala Asp Cys Leu Ile Leu Leu Ser Lys Ser Ala Pro Lys Val Val Asp
 145 150 155 160
 Glu Leu Lys Ser Leu Ser Glu Ala Val Arg Val Thr Pro Glu Thr Pro
 165 170 175
 Glu Ser Ser Tyr Asp Leu Gly Cys Leu Leu Asn Lys Lys Pro Arg Lys

180 185 190
 Gly Gly Glu Leu Glu Ser Gly Val Leu Ser Asn Glu Gln Arg Leu Met
 195 200 205
 Glu Glu Gly Phe Ser Ser Tyr Gly Thr Ser Lys Glu Pro Ala Ser Phe
 210 215 220
 Leu Arg Asp Glu Asn Arg Leu Asp Gln Gln Lys Arg Arg Lys Asp Gly
 225 230 235 240
 Glu Phe Glu Ser Gly Leu Leu Ser Asn Glu Gln Arg Leu Leu Glu Glu
 245 250 255
 Glu Ile Thr Thr Pro Val Thr Phe Lys Gly Pro Ala Ser Ser Leu Arg
 260 265 270
 His Lys Cys Ala Leu Asp Arg Asn Gly Gly Glu Phe Gly Pro Glu Phe
 275 280 285
 Leu Ser Asn Glu Gln Thr Leu Met Glu Glu Thr Trp Lys Glu Pro Val
 290 295 300
 Ser Phe Leu Glu Asp Lys His Glu Phe Asp Gln Arg Lys Met Arg Glu
 305 310 315 320
 Ala Gly Asp Phe Glu Ser Arg Phe Tyr Arg Ile Glu Leu Gly Val Gly
 325 330 335
 Ala Met Glu Cys Thr Ser Ser Asp Thr Asp Met Leu Thr Gln Ser Asp
 340 345 350
 Lys Lys Asn Val Glu His Arg Cys Arg Leu Cys Asn Lys Ile Phe Ser
 355 360 365
 Ser Tyr Gln Ala Leu Gly Gly His Gln Thr Phe His Arg Met Ser Lys
 370 375 380
 Cys Lys Asn Lys Lys Asn Gly Ile Glu Glu Ser Val Glu Pro Arg Met
 385 390 395 400
 Thr Leu

<210> 49
 <211> 1087
 <212> DNA
 <213> Arabidopsis thaliana

<400> 49
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 ttcttactat atttggatat gatgatgggt caagatgagg ttgggagtga tcagacgcaa 180
 atcataaaag ggaacgtac gaagcgacaa agatcgtctt cgacgtttgt ggtgacggcg 240
 gcgacaacag tgacttcaac aagttcatcg gccggtggaa gtggaggaga aagagctgtt 300
 tcagatgaat acaactcggc ggtttcgtct ccggtgacta ctgattgtac gcaagaagaa 360
 gaagacatgg cgatttgtct catcatgtta gtcgtggga cagttcttcc atcgccggat 420
 ctcaagaact cgagaaaaat tcatacagaag atttcgtcgg agaattctag tttctatgtg 480

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tacgagtgtgta aaacgtgtaa ccggacgttt tcgtcgttcc aagcacttgg tggacacaga 540
gcgagccaca agaagccgag gacgtcgact gagggaaaaga ctagactacc cctgacgcaa 600
cccaagtcta gtgcatcaga agaagggcaa aacagtcatt tcaaagtttc cggctcagcc 660
ctagctttcac aggcaagtaa catcatcaac aaggcaaaca aagtacacga gtgttccatc 720
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gaagagattg agatcaatat aggccgttcg atggaacagc agaggaaata tctaccgttg 900
gatcttaatc taccagcacc aggagatgat ctaagagagt ccaagtttca agggatagta 960
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<210> 50
 <211> 284
 <212> PRT
 <213> Arabidopsis thaliana

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 Ala Thr Thr Val Thr Ser Thr Ser Ser Ala Gly Gly Ser Gly Gly
 35 40 45
 Glu Arg Ala Val Ser Asp Glu Tyr Asn Ser Ala Val Ser Ser Pro Val
 50 55 60
 Thr Thr Asp Cys Thr Gln Glu Glu Glu Asp Met Ala Ile Cys Leu Ile
 65 70 75 80
 Met Leu Ala Arg Gly Thr Val Leu Pro Ser Pro Asp Leu Lys Asn Ser
 85 90 95
 Arg Lys Ile His Gln Lys Ile Ser Ser Glu Asn Ser Ser Phe Tyr Val
 100 105 110
 Tyr Glu Cys Lys Thr Cys Asn Arg Thr Phe Ser Ser Phe Gln Ala Leu
 115 120 125
 Gly Gly His Arg Ala Ser His Lys Lys Pro Arg Thr Ser Thr Glu Glu
 130 135 140
 Lys Thr Arg Leu Pro Leu Thr Gln Pro Lys Ser Ser Ala Ser Glu Glu
 145 150 155 160
 Gly Gln Asn Ser His Phe Lys Val Ser Gly Ser Ala Leu Ala Ser Gln
 165 170 175
 Ala Ser Asn Ile Ile Asn Lys Ala Asn Lys Val His Glu Cys Ser Ile
 180 185 190
 Cys Gly Ser Glu Phe Thr Ser Gly Gln Ala Leu Gly Gly His Met Arg
 195 200 205
 Arg His Arg Thr Ala Val Thr Thr Ile Ser Pro Val Ala Ala Thr Ala

210	215	220
Glu Val Ser Arg Asn Ser Thr Glu Glu Glu Ile Glu Ile Asn Ile Gly 225 230 235 240		
Arg Ser Met Glu Gln Gln Arg Lys Tyr Leu Pro Leu Asp Leu Asn Leu 245 250 255		
Pro Ala Pro Gly Asp Asp Leu Arg Glu Ser Lys Phe Gln Gly Ile Val 260 265 270		
Phe Ser Ala Thr Pro Ala Leu Ile Asp Cys His Tyr 275 280		